

We claim

1. A method for detecting an analyte in a sample using a luminescent metal complex as a labelling group, comprising
 - (i) oxidizing the metal complex;
 - (ii) reducing the metal complex by nascent hydrogen to produce a form of the metal complex that is capable of chemiluminescing; and
 - (iii) determining the analyte by means of the chemiluminescence.
2. The method of claim 1, wherein the metal complex comprises a structure of the general formula (I):



in which M is a divalent or trivalent metal cation selected from rare earth or transition metal cations,

L_1 , L_2 and L_3 are the same or different and denote ligands containing at least two nitrogen-containing heterocycles, where L_1 , L_2 and L_3 are bound to the metal cation by nitrogen atoms,

Y denotes a linker bound to one of the ligands,

m is an integer from 1 to 10 and

n is an integer from 1 to 6.

3. The method of claim 1 or 2, wherein a ruthenium complex is used as the metal complex.
4. The method of claim 1 or 2, wherein the ligands of the metal complex are selected from bipyridine or phenanthroline ring systems.
5. The method of claim 1 or 2, wherein the metal complex contains at least one hydrophilic group or/and a charge carrier.

6. The method of claim 1 or 2, wherein the metal complex is used as a conjugate with a detection reagent for the analyte.
7. The method of claim 1 or 2, wherein the detection is carried out as a homogeneous test.
8. The method of claim 1 or 2, wherein the detection is carried out as a heterogeneous test.
9. The method of claim 1 or 2, wherein the metal complex is oxidized electrochemically.
10. The method of claim 9, wherein the oxidation takes place by applying an anodic potential of at least + 1.2 V relative to an Ag/AgCl reference electrode.
11. The method of claim 1 or 2, wherein the metal complex is oxidized chemically.
12. The method of claim 11, wherein the metal complex is oxidized by PbO₂, permanganate, Cer⁴⁺ compounds or/and peroxodisulfate.
13. The method of claim 1 or 2, wherein the reduction is separated spatially or/and in time from the oxidation.
14. The method of claim 1 or 2, wherein the nascent hydrogen is generated in the direct vicinity of the metal complex.
15. The method of claim 1 or 2, wherein the nascent hydrogen is generated electrochemically.
16. The method of claim 15, wherein the electrochemical generation is carried out by applying a voltage of ≤ 1.0 V relative to an Ag/AgCl reference electrode.
17. The method of claim 1 or 2, wherein the nascent hydrogen is generated chemically.
18. The method of claim 17, wherein the nascent hydrogen is chemically generated by Li/butanol/H₂SO₄, Zn-Cu/ethanol or Zn/HCl.

19. The method of claim 1 or 2, wherein the nascent hydrogen is generated by means of ultrasound.
20. The method of claim 19, wherein the generation by means of ultrasound takes place by abstraction of hydrogen radicals from organic compounds and in particular from alkyl compounds.
21. The method of claim 1 or 2, comprising a chemical oxidation of the metal complex and an electrochemical generation of the nascent hydrogen.
22. The method of claim 1 or 2, wherein the oxidation and generation of nascent hydrogen take place in two separate reaction chambers.
23. A device for detection of an analyte in a sample using a luminescent metal complex as a labelling group comprising:
 - (i) means for oxidizing the metal complex;
 - (ii) means for generating nascent hydrogen; and
 - (iii) means for detecting chemiluminescence.
24. The device of claim 23, wherein the means (i) and (ii) comprise two separate reaction chambers.
25. The device of claim 23 or 24, wherein the means (i) are provided for the chemical oxidation of the metal complex.
26. The device of claim 23 or 24, wherein the means (ii) are provided for the electrochemical generation of nascent hydrogen.
27. A method for generating chemiluminescence comprising provision of a luminescent metal complex, oxidizing the metal complex, and reducing the metal complex by nascent hydrogen to produce a form of the metal complex that is capable of chemiluminescing.

28. A device for generating chemiluminescence comprising:
- (i) means for oxidizing a luminescent metal complex; and
 - (ii) means for generating nascent hydrogen.